



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/640,286 08/16/00 TORGERSON J 10992318-1

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INTELLECTUAL PROPERTY ADMINISTRATION
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EXAMINER

NGUYEN, L

ART UNIT

PAPER NUMBER

2861

DATE MAILED: 09/13/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
09/640,286

Applicant(s)
Torgerson et al.

Examiner
Lamson Nguyen

Art Unit
2861



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on _____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 20) ☐ Other:

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DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-4, 6-7, 13-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Ishii et al. (5,880,756).

Ishii et al. teach an ink jet printer comprising the following:

- * a printhead structure (figure 1)

- * a plurality of ink drop generators fluidically coupled to an ink supply device and formed in the printhead structure and arranged along at least three axes that are substantially parallel and spaced apart from each other (figure 1 teaches a nozzle plate have 6 arrays of nozzles A-E that are parallel and spaced apart from each other; figure 3A teaches nozzle 31 in fluidic connection to ink chamber 110)

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- * the arrays are staggered to each other (figure 1)

- * the effective pitch is decreased to less than half that of a single nozzle (figure 1 teaches pitch in arrays A and D is reduced half due to the staggered nozzles between these two arrays)

- * at least some of the plurality of ink drop generators are arranged along two of the at least three axis in staggered manner so as to approximately double a print resolution (figure 1 arrays D, F, and E)

- * a first ink feed slot having first and second opposing longitudinal edges and a second ink feed slot having third and fourth opposing longitudinal edges, and wherein the first and second axis groups of nozzles are arranged adjacent to the first and second opposing longitudinal edges, respectively, of the first ink feed slot and wherein the third axis group is arranged adjacent to the third longitudinal edge (figure 2 teaches windows 116 coinciding with ink chambers having longitudinal sides, each window is positioned between arrays of nozzles)

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 5, 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al.

Ishii et al. teach printhead plate having 6 nozzle arrays that are parallel to each other and spaced apart from each other (figure 1) such that the effective print pitch is decreased due to the staggered nozzles in all 6 arrays A-E. Ishii et al. also teach two ink windows 116 coinciding with ink chambers between arrays of nozzles (figure 2). However, Ishii et al. do not specifically teach the printhead pitch being decreased to approximately one-fourth that of a plurality of ink drops generators arranged along a single axis.

Ishii et al. do not furthermore specifically teach an array of approximately $1/300$ of an inch and whereby a combination of four staggered adjacent axis groups have an effective pitch of approximately $1/2000$ of an inch and whereby a combination of two staggered adjacent axis groups have an effective pitch of approximately $1/600$ of an inch

It would have been obvious to one having ordinary skill in the art at the time of the invention was made to make the printhead pitch $1/4$ of the a single drop array, array of approximately $1/300$ of an inch and whereby a combination of four staggered adjacent axis groups have an effective pitch of approximately $1/2000$ of an inch and whereby a combination of two staggered adjacent axis groups have an effective pitch of approximately $1/600$ of an inch, for the purpose of achieving higher density printing, since it has been held that where the general

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conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves merely routine skill in the art. In re Aller, 105 USPQ 233.

5. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al. in view of Udagawa et al. (6,231,155).

Ishii et al. teach all claimed features of the invention except for a disposable print cartridge. Printing with a disposable cartridge is well-known in the art, as taught by Udagawa et al. (Column 1, line 64-65).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the invention of Ishii et al. to incorporate the teaching of a disposable cartridge taught by Udagawa et al. for the purpose of ease of cartridge replacement.

6. Claims 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ishii et al. in view of Matsufuji et al. (4,593,295).

Ishii et al. teach all claimed features of the instant invention with the exception of:

- * a carriage assembly for imparting relative motion between the printhead and a print media
- * a controller for controlling operation of the carriage assembly

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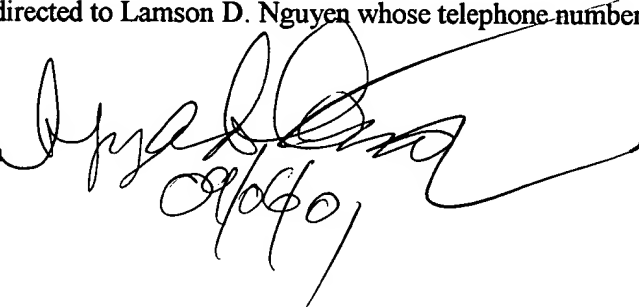
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An ink jet printer having a carriage that is controlled by a controller to move across a print media is well known in the art of ink jet printer, as evidenced by the teaching of Matsufuji (figure 1).

Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify the invention of Ishii et al. to incorporate the teaching of a carriage assembly taught by Matsufuji et al. for the purpose of printing a swath of image across a print media.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lamson D. Nguyen whose telephone number is (703)306-4547.

Ldn

A handwritten signature in black ink, appearing to read 'Lamson D. Nguyen', with a date '09/06/01' written below it.